CORE

The Voice of Mineral Exploration/Fall 2017

The arrival of the next bull market

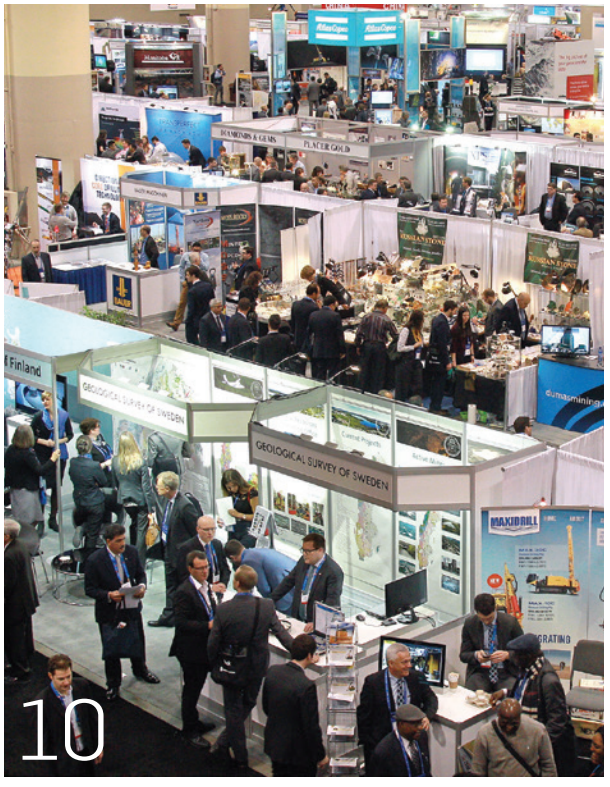
PDAC 2018 CONVENTION NEWS AND HIGHLIGHTS

S-IMEW: INSIDE THE ANNUAL WORKSHOP

NEWS FROM AROUND THE MINERALS & MINING INDUSTRY

PDAC
PROSPECTORS & DEVELOPERS ASSOCIATION OF CANADA

CORE
The Voice of Mineral Exploration
Fall 2017



FEATURES

2
Industry news

6
The next bull market for the minerals industry

10
PDAC 2018 Convention news and highlights

18
S-IMEW 2017: An insider's perspective

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INDUSTRY NEWS

CONCERN ABOUT CARBON PRICING

The NWT & Yukon Chamber of Mines (Chamber) publically announced its support for the Premiers of NWT and Nunavut in their appeals to the Government of Canada to consider the unique circumstances of the northern minerals industry before imposing a price on carbon. NWT Premier Bob McLeod and Nunavut Premier Peter Taptuna expressed hopes that the move to price carbon would recognize the unique situation of the North and include investment in the creation of viable alternatives to diesel for people and companies living and working in the territories.

CANADA'S ANTI-SPAM LEGISLATION (CASL) SUSPENDED

The Federal Government has suspended implementation of certain parts of Canada's Anti-Spam Legislation (CASL), which would have allowed individuals to take legal action against any company that sent them an email they did not want to receive. CASL are rules that came into force in 2014 for individuals and organizations sending commercial electronic messages. Parts of the legislation were delayed until July 2017, giving organizations a grace period to come into compliance. A parliamentary committee will review the legislation.

TOP 40 MINERS RETURNED TO PROFIT IN 2016

According to a PwC report released in June, the mining sector has returned to profitability with the Top 40 raking in aggregate profits of $26 billion in 2016, compared to a total loss of $34.6 billion in 2015. However, any new revenues appear to be going towards debt repayment rather than capital expenditures or exploration, and for the fourth consecutive year the industry reduced spending on exploration. Capital expenditures were down 41% in 2016 to a record low of just $65 billion. Also for the fourth year the industry reduced spending on exploration, with $9.4 billion invested in 2016, barely one-third of the record $21.5 billion allocated in 2012.

FEMINIST INTERNATIONAL ASSISTANCE POLICY

The Minister of International Development and La Francophonie, the Honourable Marie-Claude Bibeau, launched Canada's Feminist International Assistance Policy. This policy recognizes the important role of supporting gender equality. It supports targeted investments, partnerships, innovation and advocacy efforts with the greatest potential to close gender gaps and improve everyone's chance for success.

WHERE IS THE CANADIAN MINING INDUSTRY HEADED?

As the mining industry begins to show signs of economic recovery, along with its resurgence comes a problematic thin-labour supply that has the potential to derail projects, drive up the cost of finding workers, and ultimately undermine an operation's ability to run competitively unless corrective collaborative actions are taken to manage the future availability of workers. *Canadian Mining Labour Market Outlook 2017*, an annual report published by the Mining Industry Human Resources Council (MiHR), anticipates critical gaps for numerous mining-related occupations, as well as an increased retirement replacement rate.

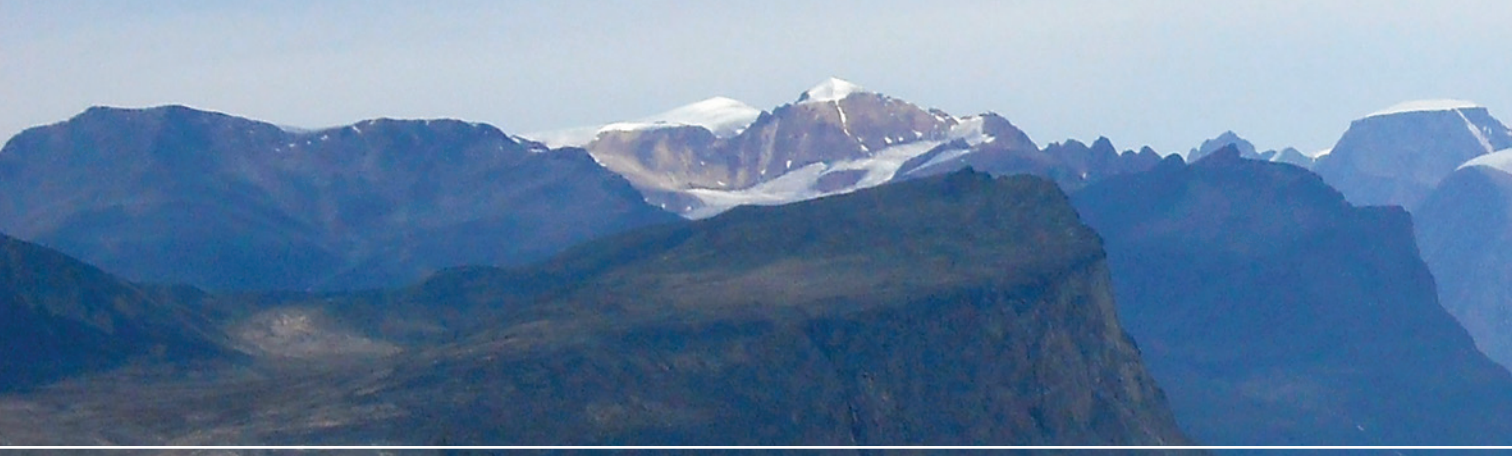
Mining for Clean Energy Report

In the context of the rapid growth of clean energy in countries around the world, and the rise of solar in particular, a recent Clean Energy Canada report explores the resulting demand for the metals and minerals used to manufacture clean energy technologies—and the opportunities and challenges this creates for mining companies and communities. *Mining for Clean Energy* examines why Canadian mines are well-positioned to serve as "clean energy enablers."

PDAC Recommendations for Federal Budget 2018

In a submission to the Standing Committee on Finance, PDAC made five recommendations for the 2018 Federal Budget to support the mineral exploration and development sector. PDAC recommended:

- **Renewal of the Mineral Exploration Tax Credit (METC) for a minimum period of three years**
- **Regulatory regimes under review be effective, efficient and balanced**
- **Infrastructure investments be made in remote and northern Canada to support mineral exploration**
- **Enhanced investment in public geoscience and support for innovation in the minerals sector**
- **Increased investment in Indigenous communities to support participation in the minerals industry.**



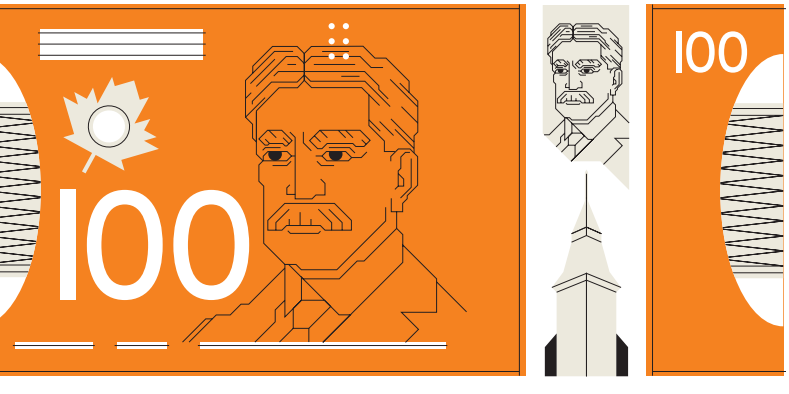
INDUSTRY NEWS

FINANCING CONTINUES TO IMPROVE

The TMX published statistics for July 2017 showing significant improvement in financing conducted via the TSX-V. The data shows an impressive **recovery of 83% in financing this year,** compared to the same period last year. As mining companies account for **more than 50% of the number of issuers,** this data testifies to the improvement in financing, especially those that are exploration focused.

Iron ore and copper prices on the rise

Over the summer, prices of two commodities were on the rise—iron ore and copper. Following a **10% rally** in copper prices, the red metal reached **$2.9 per pound,** its highest price since December 2014. The price of iron ore **increased over 20% from its mid-June level** to hover **above $70 per tonne,** recouping around half of the losses that occurred between February and June this year.



Mergers and acquisitions

According to an Ernst & Young (EY) report, the value of global merger and acquisition (M&A) activity in the second quarter of **2017 INCREASED BY 13%** from the previous quarter to **$14.8 BILLION.** Corporate activity across the precious metals sector drove the bulk of M&A activity. EY also reported that the global capital raised was **$71 BILLION IN THE SECOND QUARTER OF 2017** ($20 billion higher than in the first quarter).

Next-generation clean energy infrastructure

In partnership with the provinces and territories, Natural Resources Canada (NRCan) is investing $155 million to support clean technology projects in Canada's natural resource sectors. A call for expressions of interest is expected in the fall, followed by a call for full project proposals later in the year.

CLEER support

PDAC submitted a letter of support to The Honourable Navdeep Singh Bains, Minister of Innovation, Science and Economic Development for the CLEER Innovation Network's (Clean, Low-energy, Effective, Engaged, Remediated) proposal to formulate a Clean Resources Innovation Supercluster. The network will bring national and regional research centres, mining companies and established Canadian mining-supply organizations together to accelerate innovation adoption and integration in Canada.

INDUSTRY HIGHLIGHTS PRIORITIES TO ENERGY AND MINES MINISTERS

A brief submitted by the Canadian Mineral Industry Federation—of which PDAC is a co-chair—details several key risks and opportunities facing the mineral exploration and mining industry, and what actions governments could take in response. The brief was submitted at Canada's annual Energy & Mines Ministers Conference in Saint Andrew's, New Brunswick.

The next bull market

BY RAN MAOZ &
VIRGINIA HEFFERNAN

The prolonged downturn that has plagued the mineral exploration industry for nearly half a decade appears to be loosening its grip. Although the recovery is limited so far to a group of exploration companies, according to industry experts gathered in Vancouver for the Sprott Natural Resource Symposium this past July, the analysts projected good news for the sector—a broader bull market ahead.

Financing for global exploration bottomed at $3.7 billion in 2015, an 80% slide from the $19.4 billion raised in 2011, according to PDAC's analysis of SNL Metals & Mining data. (All figures throughout the article are in Canadian dollars.) Global exploration expenditures followed suit, dropping 65% to less than $9.1 billion by 2016 as major companies slashed exploration budgets and juniors were starved of capital.

More alarming for an industry dependent on new discoveries to survive was the decline in the share of exploration expenditures allocated to grassroots exploration. Globally, the share of grassroots exploration decreased from 48% in 2003 to 28% in 2016 and, in Canada, from 53% in 2002 to 28%.

The reasons why exploration activity, especially in the early stages, declined so severely are numerous and varied: low commodity prices, a lack of surface deposits, and the flight of speculative investors to 'hot' markets such as cannabis and cryptocurrencies. But the impact is universal. The industry lacks the deposits to replace its dwindling resource and reserve base.

Signs of recovery are beginning to emerge. In 2016, mine financings on Canadian stock exchanges (i.e. TSX and TSX-V) improved significantly (from $9 billion to $13.25 billion year over year). The upturn spread globally in the first half of 2017, as the industry raised 75% of the funds secured throughout the whole of 2016. Looking at exploration financing alone, the resurgence has been even more dramatic. Global financing for exploration increased by 70%, from $3.7 billion in 2015 to $6.3 billion in 2016, and the data to date suggests an even more impressive recovery for 2017.

The severity of the down cycle may turn out to be its silver lining. "The pipeline of development projects is very, very low and needs replenishing," says Rick Rule, President & CEO of Sprott US Holdings. "The market response to the discoveries that are made has been extraordinary because the value of these projects is very high. Successes will gradually cause the exploration sector to return to favour."

Rule cited Reservoir Minerals (Timok copper project, Serbia) and Integra Gold (Lamaque gold project, Quebec) as examples of companies that have rewarded shareholders with discoveries recently. Nevsun Resources purchased Reservoir for $475 million last year, while Eldorado Gold acquired Integra for $590 million in July 2017.

Brent Cook, an experienced exploration commentator, emphasizes the impact of a big discovery on the development of the next bull market for exploration. He believes that it could be sparked by a big discovery—most likely in the gold space—which will excite the investment community and result in increased money injected into the exploration sector.

Discovery has been an important trigger for previous exploration booms. The Ekati diamond find in the Northwest Territories in 1991, for instance, generated a massive staking rush, led to several more discoveries in the area, and encouraged juniors to explore for diamonds elsewhere in Canada. Investors eager to participate in the 'next big one' poured money into the sector. The resulting exploration boom became self-sustaining, leading to the inadvertent discovery of Labrador's Voisey's Bay, one of the world's largest nickel deposits.

The upswing exploration cycle of 2006-2011 was different from many others before it in the sense that it was driven by demand. Market excitement over high commodity prices, mostly caused by demand from China for its construction and steel-making industries, led the way to record financing for global exploration efforts. While there was renewed grassroots exploration for new discoveries, higher commodity prices also encouraged explorers to revisit old projects. New geological teams, a fresh set of eyes, and new technologies can often lead to deposit expansions or discovery of higher grade zones through diamond drilling or development of new geological models.

The hope among various investors, commentators and stakeholders is that in the next bull market, which is underway according to Rule, the industry will continue to improve its success rates. It is well-known that juniors with solid projects attract large amounts of the early venture capital, and that investments required to find the mines of tomorrow flow from their successes to new and promising grassroots exploration plays.

The mode of discovery is changing too, adds John Kaiser, a veteran industry commentator. He says the deposits uncovered in the next few years will likely be found by applying new geological thinking and innovative technologies to areas where mineralized systems are known to exist, rather than by wildcat finds.

Kaiser estimates that two-thirds of the money raised so far this year is being applied to existing geological systems to tease out higher grade, more robust deposits that can withstand metal price fluctuations. "We're seeing a shift towards factors companies themselves can control such as the exploration process and the geological ideas they bring to bear."

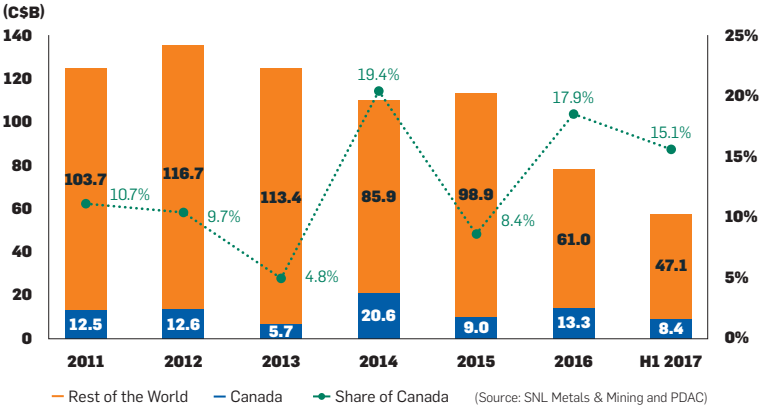
For example, Osisko Mining raised tens of millions from institutional investors this year to continue testing a new model at the Windfall gold deposit in Quebec, previously thought to be a shear-hosted vein deposit typical of Archean greenstone belts. The company has been successful, pulling high-grade intersections over impressive widths and improving the continuity of the gold zones. An updated resource estimate is expected later this year.

Kaiser notes that another emerging trend is for majors to buy an equity stake (usually 19.9% to avoid triggering takeover rules) in junior companies conducting exploration, rather than participate in a joint venture or a farm-in agreement. This strategy provides juniors not only with an additional source of financing but lends credibility to their projects, enabling them to fundraise further.

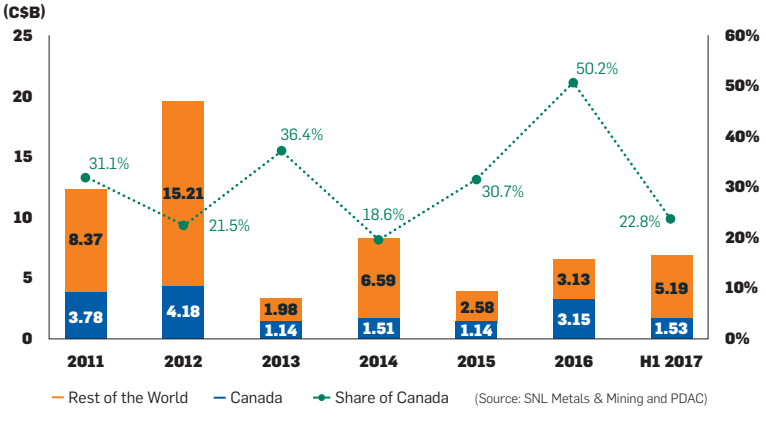
Having innovative geological concepts and new financing strategies are positive for the junior sector in particular and the mining industry as a whole, but the question remains: what could spark the next bull cycle, irrespective of a large, inspirational discovery?

Rule believes the new bull market will be spurred on by higher commodity prices in certain sectors. This time around prices will be boosted as a result of a supply shortage. Companies that shut down production capacity to stay profitable in a low price

Financing for the Global Minerals Industry
2011-2017 H1 (C$ Billion)



Financing for Minerals Exploration
2011-2017 H1 (C$ Billion)

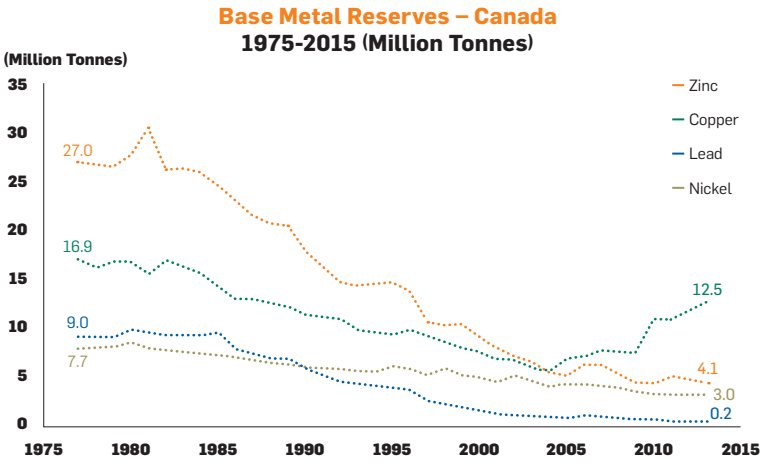


environment won't be able to react fast enough to upward price signals, which will push prices up even further.

He uses the copper market as an example. "The industry is beginning to defer sustaining capital investments at the largest and best copper deposits in the world," he says. "This will lead to lower production rates, lower mine life, and higher operating costs. The ultimate consequence is higher (copper) prices."

The atmosphere in the minerals sector has turned positive among both issuers and investors. While the precise factors that will drive the next bull market are as yet unknown, there is a wide agreement about one outcome —after a long and painful slump, exploration will enjoy a significant renaissance. **c**

Ran Maoz is the PDAC's Analyst of Tax Policy & Capital Markets. Virginia Heffernan is the Principal of GeoPen Communications and a science and business writer who specializes in mineral and energy resources.



Canadian reserve for select base metals (Source: Richard Schodde using data from NRCan)

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Apply to present your technical, policy or academic abstract! Exploration Insights is a high-profile venue for speakers who wish to present topical subjects in a forum outside the themed Technical Sessions. All interested individuals, including academics and graduate students, are welcome. **Apply by October 30.**

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Your company will have outstanding visibility and on-stage presence at the Grand Finale. Held at the Fairmont Royal York, hundreds of convention attendees will gather to enjoy live entertainment and networking at this must-attend event.

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Benefit from recognition at the Commodities and Market Outlook Session that attracts private, retail and institutional investors, analysts, brokers, business reporters and government leaders from over 100 countries. Your brand recognition continues at the highly anticipated Opening Day Reception where over 2,000 attendees will gather on the Trade Show North floor.

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As the exclusive sponsor of the Trade Show South Food Pavilion, the primary eatery and major business hub for attendees on the Exhibit Floor (Level 800), your company logo will be displayed on impressive banner signage upon entry through the corridor and in the food concession area. A custom kiosk is also included in the sponsorship package.

The PDAC 2018 Global Sponsorship & Marketing Program launches **September 22**. For more information about sponsorship, or to discuss options available to achieve your marketing goals, contact Christina Goncalves Toste at **sponsor@pdac.ca**.

TECHNICAL PROGRAM

These dynamic and engaging series of presentations are led by industry experts who will share their timely insights.

Technical Program themes include:

1. At pre-feasibility/feasibility, what do we need to do to get the last pieces of the puzzle to construction?
2. Changing world economic and political fundamentals and their impact on traditional and critical metals
3. Commodities and market outlook
4. Finance
5. Geology and mineralization of the Golden Triangle, British Columbia
6. Geophysics
7. Gold and base metals in the Arabian-Nubian Shield: Recent successes
8. Kazakhstan and uranium: What the future holds
9. Keynote Session – A review of the industry: Where have we been and where are we going?
10. Land of the giants: The mid-Proterozoic basins of Northern Australia
11. Mineral deposits of China
12. Mineral deposits of the USA
13. New discoveries and developments
14. Reopening of previously closed mines: Case studies on developing the remaining potential
15. The 25th anniversary of Canadian diamond mining: The next generation
16. The role of renewables in boosting the sustainability and competitiveness of mines
17. Valuation of water, waste and other external costs

Learn more at **www.pdac.ca/convention/programming/technicalprogram**

Note: Technical Program themes are subject to change

NETWORKING EVENTS

Visit **www.pdac.ca/convention/networkingevents** for the latest info on these must-attend events.

OPENING DAY RECEPTION

Sunday, March 4
4:00 - 6:00 pm
PDAC welcomes you to the largest networking event at the convention. Enjoy appetizers and a complimentary beverage as you connect with attendees, exhibitors and colleagues.

VIP and All Access Pass holders receive a complimentary beverage ticket.
Cash bars available.

MINERAL OUTLOOK LUNCHEON

Monday, March 5
12:00 - 2:00 pm

OPPORTUNITIES FOR THE MINING AND METALS INDUSTRY IN AN EXCESS SUPPLY WORLD

A. Gary Shilling, Ph.D., President of A. Gary Shilling & Co., Inc., Springfield, NJ, USA

Don't miss economic consultant, investment adviser, best-selling author and avid beekeeper **A. Gary Shilling, Ph.D.**, as he discusses the outlook for minerals and metals in a world where the supply of almost everything exceeds demand. His discussion will outline seven strategies for thriving in this atmosphere.

Dr. Shilling is President of A. Gary Shilling & Co., Inc., an investment adviser registered with the State of New Jersey Bureau of Securities, and publishes *A. Gary Shilling's INSIGHT*, a monthly report of economic forecasts and investment strategies.

Twice ranked as Wall Street's top economist by polls in the *Institutional Investor*, Dr. Shilling was also named the country's No. 1 Commodity Trader Adviser by *Futures* magazine. He has been cited in *The Wall Street Journal* on numerous occasions for his on-the-mark economic forecasts. In 2003, *MoneySense* ranked him as the 3rd best stock market forecaster, right behind Warren Buffett. He is also the longest-running columnist at *Forbes* magazine, where he has been challenging the consensus since 1983, a regular columnist for *Bloomberg View*, and also appears frequently on Bloomberg radio and television and on various investment webcasts.

Ticket includes a three-course meal.

A sold out event in 2017.
Get your tickets early in December!

TRADE SHOW RECEPTION

Monday, March 5
3:00 - 5:00 pm
Enjoy a glass of wine or beer as you network with Trade Show North exhibitors and attendees from international and domestic companies, including organizations promoting technology, products, services and mining jurisdictions.

VIP and All Access Pass holders and Exhibits Pass holders receive a complimentary beverage ticket. Cash bars available.

STUDENT-INDUSTRY NETWORKING LUNCHEON

Tuesday, March 6
11:30 – 1:30 pm
The flagship event of the Student Program, this reception-style buffet luncheon provides an opportunity to make valuable connections with industry professionals and peers. The winner of the Mary-Claire Ward Geoscience Award will be announced, as well as the selected 2018 Student-Industry Mineral Exploration Workshop (S-IMEW) students.

PDAC AWARDS GALA & AFTER PARTY

Tuesday, March 6
6:00 - 11:00 pm
The PDAC Awards Gala celebrates industry excellence and brings together the who's who of the global mining industry. Network at the exclusive cocktail reception followed by a three-course gourmet dinner and fine wines.

Then... it's on to the AFTER PARTY!
Your opportunity to meet and mingle with the Award recipients, C level executives, financiers, brokers and mining developers. Enjoy two complimentary drink tickets and a great party atmosphere – the perfect backdrop for unlimited networking!

A sold out event in 2017.
Get your tickets early in December!

GRAND FINALE

Wednesday, March 7
8:00 pm - 12:00 am
After four exhilarating days at the world's premier mineral exploration and development convention, join us at the must-attend **GRAND FINALE!**

It's your time to **PARTY!**
Join us at this **FREE** event!

Dress casual and get your two **FREE** drink tickets at the door, grab a bite to eat and **dance, dance, dance!**

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S-IMEW 2017

BY MARC GASPAROTTO & KRISTY KENNY

S-IMEW 2017 HIGHLIGHTS

- Hands-on demonstrations of electromagnetic induction and induced polarization geophysics
- Tour of the Sudbury Basin
- Government mapping with the Ontario Geological Survey
- Exploration grid-mapping with Wallbridge personnel
- Exploring a diamond drill with Foraco
- Glencore Smelter tour
- Lake sediment sampling
- Two underground mine tours (Bell Creek and Timmins West)
- Career presentations by several S-IMEW alumni

The Student-Industry Mineral Exploration Workshop (S-IMEW) is an important program created for geoscience students to put their education into action before entering the workforce. Why? Because maintaining the strength and vibrancy of the mineral exploration and mining industry in Canada means investing in the students who will ultimately become its future.

This year, PDAC welcomed 25 of Canada's top geoscience students to Sudbury, Ontario to take part in the annual S-IMEW program from May 4-19. As a point of pride, more than half of the students in 2017 were female, demonstrating the diverse and gender balanced direction the sector is moving towards.

More than 90 geoscience professionals—without whom, S-IMEW would not be possible—generously donated their time and expertise to the workshop. Keith Barron, Chairman and CEO of Aurania Resources Ltd. kicked things off by sharing his exploration journey and gave an update on his exciting new project, Lost Cities.

The workshop included a tour of the Sudbury Basin, exploration mapping with Wallbridge Mining personnel, government mapping with the Ontario Geological Survey, a tour of the Glencore Smelter, and a crash course in mineral economics with Professor Michael Doggett. There were stops along the Noranda camp in Quebec and the world-class Pyke Hill Komatiite where students marvelled at the spinifex texture of the flows. Tahoe Canada hosted a tour of two underground mines, Timmins West and Bell Creek, providing a glimpse into the daily life of a mine geologist.

PDAC was surprised to recently learn about a student program named National Exploration Undercover School (NExUS) operating in Australia. It closely resembled S-IMEW, however neither program was known to the other. To learn more about S-IMEW—and to look for ways to possibly partner and collaborate—one of the NExUS founders, Dr. Richard Lilly from the University of Adelaide, South Australia, travelled to Canada to join the students on a four-day field trip to the Abitibi Greenstone Belt to explore the geology of Timmins and Rouyn-Noranda. At the final reception, Richard thanked the S-IMEW organizers and presented the co-chairs, Felix Lee and Karen Rees, with a ceremonial boomerang.

Thank you to all of the outstanding volunteers and sponsors who allow S-IMEW and its participants to succeed each and every year. Without this ongoing support and generosity, students would not have this exceptional opportunity. **c**

Kristy Kenny is PDAC's Manager, Communications.
Marc Gasparotto was PDAC's Coordinator, Student Program.

PDAC's Student-Industry Mineral Exploration Workshop (S-IMEW): An Australian Perspective

BY RICHARD LILLY,
NATIONAL EXPLORATION UNDERCOVER SCHOOL (NEXUS), UNIVERSITY OF ADELAIDE

The Australian National Exploration Undercover School (NExUS) was established in 2016 by Graham Heinson and Richard Lilly of the University of Adelaide. The aim was to immerse and upskill 30 students and early career geoscientists from across Australia. Topics included current and emerging geophysical, geochemical and geological exploration techniques, the challenges facing the minerals industry, career advice and networking opportunities. Unknown to the NExUS organizers, the Prospectors & Developers Association of Canada (PDAC) have been proactively addressing the same challenges since 2007 through the prestigious Student-Industry Mineral Exploration Workshop (S-IMEW).

After learning about the existence of each other's mutually-aligned courses, and a couple of good-natured Skype calls later, I found myself on a flight to Sudbury. I would join the students for the second week of their S-IMEW experience to provide a perspective for our NExUS course and to learn from our Canadian counterparts. Student participants apply to take part in S-IMEW—a single student selected from each institution teaching geology (NExUS selects two per institution)—with the aim to bring a cohort of highly-motivated future geoscience leaders together for an exceptional training and professional development experience.

The first week of S-IMEW covered professional and networking skills, geochemistry (including QAQC), geological reporting, geological mapping from both government survey and exploration approaches, a Sudbury Basin fieldtrip and a visit to Glencore's Ni smelter. The second week promised a fieldtrip through the Archean Abitibi Province with world-class field days at Rouyn-Noranda (Archean VMS), Timmins (Greenstone Au), Pyke Hill (komatiites), industry meet-and-greet and career advice sessions, a 'diamond-day,' as well as an underground visit to a producing Au mine and Au processing facilities. A packed schedule!

I was met in a sunny Sudbury by S-IMEW Student Coordinator Marc Gasparotto and immediately joined the group in their fleet of mini-buses to travel the 350 km north to Rouyn-Noranda, Quebec. One thing Australia and Canada certainly have in common is scale! On route a stop was made to observe 2.79Ga banded iron formations (BIF) of the Archean Abitibi Basin. Being used to Australia's often ancient and deeply weathered exposures, seeing polished fresh rocks of such great age was staggering. I am not sure the Canadian students can appreciate how fortunate they are to have such well-presented outcrops!

The theme of being staggered by what I was seeing continued in the field for the next couple of days with a full-day fieldtrip around the classic Noranda-camp VMS deposits (led by Gérald Riverin) to view mineralized exposures, brecciation and alteration. This was followed by a textbook volcano-stratigraphic logging exercise within sight of Glencore's Noranda operation. I also felt I was getting a true taste of Canada by crossing a beaver dam to get to outcrops and tasting my first double-double and poutine (but not at the same time).

As soon as we were in the field it was clear that the S-IMEW selection process is working well, with keen cheerful students having to be prised off each outcrop to return to the buses. A neat bonus for the students is that they each get their own 'rock-box'—a large cardboard filing box that gets delivered by PDAC to the students' home to encourage sample collecting. Some of these boxes were seriously weighty by the end of the week!

Evenings were also packed, with time for a quick change before evening activities and post-dinner talks from industry representatives. Evening sessions covered a range of topics including career paths, ore deposit models and successful exploration case studies.

After two days in Quebec the fieldtrip moved locations to Timmins, Ontario stopping at Pyke Hill to view the world-class komatiite flows and also visit the Potter Mine Cu-Zn-Pb deposit.

Timmins reminded me very much of Mount Isa in Queensland, a proud mining community with a history inseparable from the minerals industry. The first day in Timmins featured a geology tour of the area, including historical outcrops and mine visits to Goldcorp's Porcupine Dome and Hollinger open pits. Tahoe Canada hosted an excellent meet-and-greet evening where the students could meet senior staff from all facets of the Timmins operations and get a perspective on the range of geoscience-related careers that exist. The students were also treated to comprehensive tours of Tahoe Canada Timmins West and Bell Creek underground mines and their Bell Creek Au processing mill. I have never been on a tour that has had such open access to operations at this scale. The pace of the fieldtrip was unrelenting and after a day spent underground at a mine and visiting processing facilities the group re-boarded the mini-buses to return 300 km back to Sudbury.

The energy and positivity displayed by the students in the field was impressive. It was also extremely pleasing to see the students looking out for each other in the field; a sure sign that a strong group dynamic has been built. Hopefully these friendships will continue into the cohort's professional networks during their careers; an aim very much shared by NExUS.

The final day of S-IMEW was hosted by senior geologists from De Beers Canada and included a great series of lectures on kimberlite geology and diamond exploration.

We were also allowed privileged access to diamond exploration drill core and spent a few fascinating hours viewing complex breccia textures. The level of technical expertise the students were exposed to on this and every other day was remarkable. To top the diamond-day off we were then taken to the (not-so) secret diamond cutting facility in downtown Sudbury where we were allowed to get up close to hundreds of Canadian diamonds, including raw stones in the process of being cut and faceted. With exposure to so much information and new experiences I suspect some of the learning outcomes from the workshop will take some time to settle in, and for the students to reflect on the fantastic opportunity that S-IMEW represents to their careers.

The workshop concluded with a farewell meal, where contributing industry geoscientists, academics, previous S-IMEW alumni and their guests mingled and discussed the previous two weeks. Speeches were made and the whole experience was wrapped up by the organizers. I was able to present S-IMEW Chairman Felix Lee with an Australian boomerang painted with traditional Aboriginal designs—a symbol of a relationship between S-IMEW and NExUS that will hopefully keep returning. To provide a Canadian perspective for NExUS 2017 we plan to involve a S-IMEW alumnus as a demonstrator during the course. Hopefully further cross-pollination initiatives can take place in future years to continue to exchange ideas and approaches in exploration between Australian and Canadian geoscientists.

Reflecting on an extremely memorable week I was struck by the profound similarities of the exploration and mining histories of Canada and Australia, including the scale of both countries and the late-nineteenth century timing and serendipity of many of the mineral discoveries. The logistical and climatic challenges of development and sustaining remote mining camps (in the face of the near opposite climatic extremes between Australia and Canada) and the pride inherent in the mining communities we visited (and their mutual love of big trucks and beer!).

The current and future challenges facing the exploration industry are also highly comparable between the two countries as we explore ever more remote areas and under cover. Surely one of the best ways to address the challenges of the future is to upskill the next generation of explorers and to assist in providing a network for them to learn from. Hopefully the motivated future leaders of S-IMEW will help address the challenge in Canada as it is hoped the NExUS alumni will in Australia.

My thanks go to Felix Lee, Karen Rees and Marc Gasparotto for the invitation to attend and for the S-IMEW cohort for making me feel so welcome during the fieldtrip. I am hopeful to be able to join the next S-IMEW group in 2018 to continue the positive connection between our two exploration training initiatives. **c**

The S-IMEW Questionnaire

Matthew DeGasperis
Western University (UWO)

WHAT WAS YOUR FAVOURITE S-IMEW MOMENT?

Meeting and getting to know my fellow students was definitely a highlight. Picking a specific moment is difficult but if I were to choose it would be at the Glencore drill site. I learned some important drilling techniques (e.g. ins and outs of wedging) that have given me more insight for operations support in my role as a project geologist. It was also a great spot for talking with students about their experiences. Overall, good job Glencore!

WHAT WAS YOUR FAVOURITE DAY?

See above. Glencore day was great. However, there were many other amazing days, mainly while out in the field, like government mapping day, exploration mapping with Wallbridge, as well as the days spent in Noranda and Timmins.

WHAT EFFECTS DO YOU THINK S-IMEW WILL HAVE ON YOUR CAREER?

I strongly believe S-IMEW will have a positive effect on my career. Not only have I made strong connections with some top industry personnel, I have made strong connections with my generation's geologists around the country. The latter alone could bring amazing job and entrepreneurial opportunities going forward. Also, the prestige of being a S-IMEW alumni and having it on my resume could instantly translate into a career. Other benefits include being exposed to industry regulations, technologies and processes.

WAS THERE A SPEAKER THAT INSPIRED YOU THE MOST?

I would say the keynote speaker Keith Barron was most inspirational to me. His story of perseverance through tough times in the industry and/or in his career eventually leading to his discovery of the Fruta del Norte world-class deposit in Ecuador was amazing and truly inspirational. What an amazing speaker and storyteller.

HOW DID THE PRESENCE OF S-IMEW ALUMNI SPEAKERS AFFECT YOUR EXPERIENCE?

Learning what S-IMEW did for fellow alumni was eye opening and a really nice change-up in the daily talks. It made the evening more relaxing after a long day. The talks were a lot easier to follow at that time of the day/evening. Learning where these alumni are at in their careers within just a few years after their S-IMEW experience was also very motivational. Overall this was a really great part of the program and they should try to bring in more speakers for the evening talks.

> "I strongly believe S-IMEW will have a positive effect on my career. Not only have I made strong connections with some top industry personnel I have made strong connections with my generation's geologists around the country."

WHAT LESSON DID YOU TAKE AWAY FROM YOUR EXPERIENCE UNDERGROUND?

Safety is definitely a priority. This is true anywhere but underground there are so many more concerns to look out for and be aware of.

WHAT LESSON DID YOU TAKE AWAY FROM YOUR EXPERIENCE IN THE FIELD?

Same as above. Also some techniques used for mapping and drilling processes.

WOULD YOU LIKE TO SAY ANYTHING TO THE SPONSORS?

Thank you to all the sponsors for making S-IMEW possible. Your sponsorship of this program is very important for the development of the many new generations of geoscientists for the mining and exploration industry. Not only have we made strong, long-lasting connections and friendships, we have gained valuable practical knowledge and experience. Programs like S-IMEW are what make our industry great and will continue to do so with your help.

Kassandra Sofonio
McGill University

WHAT WAS YOUR FAVOURITE S-IMEW MOMENT?

My favourite moment was when we visited the Glencore Smelter and saw them pour the molten metal into large crucibles. I had never seen anything similar and it really impressed me.

WHAT WAS YOUR FAVOURITE DAY?

My favourite day was the Pyke Hill day of the Noranda Field Trip. Seeing the komatiites and having a tour of the geology in that area was one of the highlights of the trip for me. In addition, our guide made the visit extremely dynamic and poignant.

> "I think S-IMEW has given me a bit of an advantage over the other students that didn't get the chance to participate in the workshop. The connections I made, the experiences I gained, and the speakers I met all helped give me insight into having a successful career."

WHAT EFFECTS DO YOU THINK S-IMEW WILL HAVE ON YOUR CAREER?

I think S-IMEW has given me a bit of an advantage over the other students that didn't get the chance to participate in the workshop. The connections I made, the experiences I gained, and the speakers I met all helped give me insight into having a successful career. I developed tools at the workshop that I am sure will help me with my career in the future.

WAS THERE A SPEAKER THAT INSPIRED YOU THE MOST?

There are many speakers that inspired me, but if I had to choose one I would say Patrick McAndless stands out the most. He gave an incredible speech and he really tries to help the students with their careers. Even when the workshop ended we kept in contact and he has helped me with various things, such as how I should present myself to a potential employer.

HOW DID THE PRESENCE OF S-IMEW ALUMNI SPEAKERS AFFECT YOUR EXPERIENCE?

The speakers really opened my eyes to a lot of topics I knew nothing about. In school we learn a lot of geological theory, but we don't really learn about the industry. The speakers provided a lot of insight and advice about having a geological career.

WHAT LESSON DID YOU TAKE AWAY FROM YOUR EXPERIENCE UNDERGROUND?

Considering how our underground experience was terminated prematurely due to a power outage, the main takeaway is that going underground can be unpredictable. There are dangers, as well as unforeseen circumstances, so vigilance is required while working underground.

WHAT LESSON DID YOU TAKE AWAY FROM YOUR EXPERIENCE IN THE FIELD?

I learned a lot of techniques in the field that I hadn't learnt during my field schools. Essentially, it made me realize that there are a lot of different methods to conduct exploration, and that these methods ameliorate with time as technology advances.

WOULD YOU LIKE TO SAY ANYTHING TO THE SPONSORS?

I would just like to immensely thank the sponsors. S-IMEW has been one of the most enriching experiences of my geological career to date. I am often reminiscent about the workshop and all the wonderful memories I got thanks to it. **c**

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